6ES8

Variable-Mu Twin Triode

9-PIN MINIATURE TYPE

GENERAL DATA

Electrical:

Heater, for Unipotential Cathodes:

Voltage (AC or DC)	6.3	volts
Current	0.365	amp

Direct Interelectrode Capacitances:

	Without External Shield	*With External Shield*[a]	
Grid to plate (Each unit)	1.9	1.9	μμf
Plate to cathode (Each unit)	0.18	0.17	μμf
Heater to cathode (Each unit)	3	3[b]	μμf
Plate of unit No.2 to plate of unit No.1	0.04 max.	0.015 max.	μμf
Plate of unit No.2 to grid of unit No.1	0.003 max.	0.003 max.	μμf
Grid of unit No.1 to cathode of unit No.2	0.002 max.	0.002 max.	μμf

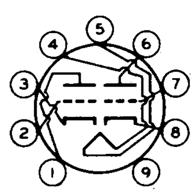
Characteristics, Class A_1 Amplifier (Each Unit):

Plate Voltage	90	90	90	volts
Grid Voltage	-1.2	-5	-9	volts
Plate Resistance (Approx.)	2500	-	-	ohms
Transconductance	12500	625	125	μmhos
Plate Current	15	-	-	ma

Mechanical:

Operating Position . . . . Any
Maximum Overall Length . . . . 2-3/16"
Maximum Seated Length . . . . 1-15/16"
Length, Base Seat to Bulb Top
(Excluding tip) . . . . 1-9/16" ± 3/32"
Diameter . . . . 0.750" to 0.875"
Dimensional Outline . . . . See *General Section*
Bulb T6-1/2
Base . . . . .Small-Button Noval 9-Pin (JEDEC No.E9-1)
Basing Designation for BOTTOM VIEW 9AJ

Pin 1 - Plate of Unit No.2
Pin 2 - Grid of Unit No.2
Pin 3 - Cathode of Unit No.2
Pin 4 - Heater
Pin 5 - Heater



Pin 6 - Plate of Unit No.1
Pin 7 - Grid of Unit No.1
Pin 8 - Cathode of Unit No.1
Pin 9 - Internal Shield

AMPLIFIER — Cascode Type

Maximum Ratings, *Design-Center Values:*

PLATE SUPPLY VOLTAGE with plate current = 0	550 max.	volts
PLATE VOLTAGE (Each Unit)	130 max.	volts
GRID VOLTAGE: Negative-bias value (Each Unit)	50 max.	volts
CATHODE CURRENT (Each Unit)	22 max.	ma
PLATE DISSIPATION (Each Unit)	1.8 max.	watts
HEATER-CATHODE VOLTAGE:		
Unit No. 1:[c]		
RMS voltage between cathode and heater	50 max.	volts
Unit No. 2:[d]		
RMS voltage between cathode and heater[e]	50 max.	volts
DC voltage between cathode and heater[e]	130 max.	volts

Typical Operation:

In a cascode-type circuit with the grid of the output unit connected to a voltage divider[f]

Supply Voltage	180	volts
Plate Current	15	ma
Transconductance	12500	μmhos
Noise Figure[g]	6.5	db
Grid Voltage (Approx.) for transconductance (μmhos) = 125	-9	volts
Input Voltage for cross-modulation factor = 0.01 and transconductance (μmhos) = 125	500	millivolts

Maximum Circuit Values:

Grid-Circuit Resistance (Each Unit)	1 max.	megohm

[a] With external shield JEDEC No.315 connected to cathode of unit under test except as noted.
[b] With external shield JEDEC No.315 connected to ground.
[c] Grounded-cathode input unit—pins 6, 7, and 8.
[d] Grounded-grid output unit—pins 1, 2, and 3.
[e] Cathode positive with respect to heater.
[f] In order not to exceed the maximum-rated plate voltage when the cascode-type amplifier is controlled, it is necessary to use a voltage divider for the grid of the grounded-grid output unit.
[g] Measured with tube operating in a television tuner.